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EXAMINER

DI GRAZIO, JEANNE A

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,969

Applicant(s)

SAITO ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on Figs 14, 15 10/07/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

Claims 1-20 are pending. Claims 1, 7 and 11 have been amended per Amendment of October 7, 2004. Claims 18-20 are newly added per Amendment of October 7, 2004.

Priority

Priority to Japanese Patent Application No. 2001-039522 (Feb. 16, 2001) is claimed.

Drawings

The drawings were received on October 7, 2004. These drawings are Figures 14 and 15.

Claim Objections

Claim 1 as amended is objected to because of the following:

As to claim 1 (amended), Applicant recites “and respective major portions or respective whole portions of four sides of the transparent sheet are adhered to the diffusion plate to seal a gap therebetween from outside air.”

The newly recited limitation “to seal a gap therebetween from outside air” is confusing and unclear. Such newly recited limitation is confusing and unclear because it appears to contradict the rest of the claimed subject matter.

For example, the optical sheet is brought into contact with the diffusion plate. Contact means “a union or junction of surfaces” (Merriam Webster’s 10TH Ed. Collegiate Dictionary at

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page 249). The claim then recites that “respective major portions” or “respective whole portions” of four sides of a transparent sheet are adhered to the diffusion plate. These limitations (“respective major portions” or “respective whole portions”) mean that only part of the transparent sheet’s boundary is adhered to the diffusion plate but that not necessarily the entire perimeter of the transparent sheet is adhered to the diffusion plate.

If such is the case (that only part of the transparent sheet is adhered to the diffusion plate) then it cannot be possible that a gap between the transparent sheet and the diffusion sheet is sealed off from outside air. Rather, it seems as if some outside air would seep between the transparent sheet and the diffusion plate.

The Examiner is unable to glean and unable to interpret the nature of what Applicant now claims.

For examination purposes, the Examiner presumes that such limitations / recitations read on the existing art of record.

Appropriate correction is **required**.

Claim 7 (as amended) is objected to because of the following:

As to claim 7 (amended) recites “ and at least respective portions of four sides of the transparent sheet are adhered to the diffusion plate to seal a gap therebetween from outside air.”

The newly recited limitation “to seal a gap therebetween from outside air” is confusing and unclear. Such newly recited limitation is confusing and unclear because it appears to contradict the rest of the claimed subject matter.

Respective means partial (Merriam Webster’s 10TH Ed. Collegiate Dictionary at page 997). In order for the transparent sheet and diffusion plate to be sealed in order to prevent the

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introduction of outside air, the entire perimeter (as opposed to a part of or parts) of the transparent sheet must be adhered to the diffusion plate.

The Examiner is unable to glean and unable to interpret the nature of what Applicant now claims.

For examination purposes, the Examiner presumes that such limitations / recitations read on the existing art of record.

Appropriate correction is **required**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) Figure 14 in view of United States Patent 6,590,625 B1 (to Umemoto et al.).

As to claim 1 (amended), APA Figure 14 illustrates the following elements: a liquid crystal display element (PNL, LC, SUB1, SUB2), a light source (BL) located right below a back surface of the liquid crystal element, a substantially rectangular diffusion plate (SCT) which is interposed between the liquid crystal display (PNL, LC, SUB1, SUB2) element and the light source (CFL), and at least one optical sheet (OPS) which is arranged between the diffusion plate (SCT) and the liquid crystal display element (PNL, LC, SUB1, SUB2), and the optical sheet (OPS) contacts the diffusion plate (SCT).

APA does not appear to explicitly specify that the liquid crystal display device includes a transparent sheet which is arranged between the diffusion plate and the light source and has a contour which is substantially equal to a contour of the diffusion plate and respective major portions or respective whole portions of four sides of the transparent sheet are adhered to the diffusion plate to seal a gap therebetween from outside air.

Umemoto teaches and discloses a liquid crystal display device and a light diffusion layer (reference number 4 in the various figures). Umemoto states the following:

“According to the present invention, optical elements or parts such as the light pipe, the light diffusion layer, the liquid-crystal cells, the polarizing plates, etc., constituting the aforementioned liquid-crystal display device may be wholly or partially laminated and fixed so as to be integrated with one another or may be disposed in an easily separable state. From the point of view of prevention of lowering of contrast due to

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suppression of interfacial reflection, or the like, it is preferable that the optical elements or parts are fixed. A suitable transparent adhesive such as an adhesive can be used for the fixing and contacting process." (Column 13, Lines 59-67 and Column 14, Lines 1-6)(emphasis added).

In other words, Umemoto provides a direct teaching that the diffusion layer can be adhered (laminated and fixed) with a transparent adhesive and furthermore that the diffusion type reflection sheet is bonded onto the lower surface of a light pipe by a tacky layer (Column 14, Lines 38-39). Therefore, it is strongly suggested that at least respective major portions or respective whole portions of four sides of the transparent adhesive must be adhered to the diffusion layer. It may be presumed that the diffusion layer and transparent adhesive have the same contour.

Presumably, then, if the optical elements are wholly laminated to each other then outside air is prevented from seeping into the optical sheets (See Claim Objections above).

Umemoto is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to arrange a transparent sheet between the diffusion plate and the light source and with a contour which is substantially equal to a contour of the diffusion plate and respective major portions or respective whole portions of four sides of the transparent sheet are adhered to the diffusion plate to seal a gap therebetween from outside air for the reasons as set for in Umemoto, specifically so that lowering of contrast can be prevented (Id.).

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Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of Umemoto so that lowering of contrast can be prevented.

As to claim 2, Umemoto teaches and discloses that the optical films, diffusion layer and transparent adhesive are laminated, fixed, and bonded which suggests to one of ordinary skill in the art of liquid crystals that the whole four sides of the transparent adhesive are adhered to the diffusion plate.

As to claim 3, the transparent adhesive is adhered to the diffusion layer by a tacky layer (Column 14, Lines 37-39).

As to claim 4, Umemoto teaches and discloses that optical films are laminated together and are integrated with one another (Column 13, Lines 59-65) and as such one of ordinary skill in the art of liquid crystals would infer that an optical sheet is adhered to the diffusion layer.

As to claim 18 (new), APA Figure 14 illustrates a plurality of fluorescent lamps (CFL).

Claims 5-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) Figure 14 in view of United States Patent 6,590,625 B1 (to Umemoto et al.) and further in view of Japanese Patent JP-06-095105 (to Yamaguchi et al.)(published in April of 1994).

As to claim 5, APA Figure 14 does not appear to explicitly specify that the liquid crystal display device includes a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source.

Yamaguchi teaches and discloses a back light for a liquid crystal module and an adjusting means (screws, 20) for changing the positions of a light curtain (10) and diffusion plate (9) from

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the outside of the back light housing (Abstracts of Japan). The screws (20)(Applicant's "spacer") adjust positions of the light curtain (10) and diffusion plate (9) to accommodate for thermal deformation (warp) and ultimately so that unequal brightness can be eliminated (Abstracts).

Yamaguchi is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source for the reasons as set forth in Yamaguchi, so that thermal deformation (warp) can be accommodated and so that unequal brightness can be eliminated.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of the teachings of Yamaguchi so that thermal deformation (warp) can be accommodated and to eliminate unequal brightness.

As to claim 6, Umemoto teaches and discloses that optical films are laminated together and are integrated with one another (Column 13, Lines 59-65) and as such one of ordinary skill in the art of liquid crystals would infer that an optical sheet is adhered to the diffusion layer.

As to claim 7 (amended), APA Figure 14 illustrates the following elements: a liquid crystal display element (PNL, LC, SUB1, SUB2), a light source (BL) located right below a back surface of the liquid crystal element, a substantially rectangular diffusion plate (SCT) which is interposed between the liquid crystal display (PNL, LC, SUB1, SUB2) element and the light source (CFL), and at least one optical sheet (OPS) which is arranged between the diffusion plate (SCT) and the liquid crystal display element (PNL, LC, SUB1, SUB2), and the optical sheet (OPS) contacts the diffusion plate (SCT).

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APA does not appear to explicitly specify that the liquid crystal display device includes a transparent sheet which is arranged between the diffusion plate and the light source and has a contour which is substantially equal to a contour of the diffusion plate and at least respective portions of four sides of the transparent sheet are adhered to the diffusion plate to seal a gap therebetween from outside air.

Umemoto teaches and discloses a liquid crystal display device and a light diffusion layer (reference number 4 in the various figures). Umemoto states the following:

“According to the present invention, optical elements or parts such as the light pipe, the light diffusion layer, the liquid-crystal cells, the polarizing plates, etc., constituting the aforementioned liquid-crystal display device may be wholly or partially laminated and fixed so as to be integrated with one another or may be disposed in an easily separable state. From the point of view of prevention of lowering of contrast due to suppression of interfacial reflection, or the like, it is preferable that the optical elements or parts are fixed. A suitable transparent adhesive such as an adhesive can be used for the fixing and contacting process.” (Column 13, Lines 59-67 and Column 14, Lines 1-6)(emphasis added).

In other words, Umemoto provides a direct teaching that the diffusion layer can be adhered (laminated and fixed) with a transparent adhesive and furthermore that the diffusion type reflection sheet is bonded onto the lower surface of a light pipe by a tacky layer (Column 14, Lines 38-39). Therefore, it is strongly suggested that at least respective portions of four sides of the transparent sheet must be adhered to the diffusion layer. It may be presumed that the diffusion layer and transparent adhesive have the same contour.

Presumably, then, if the optical elements are wholly laminated to each other then outside air is prevented from seeping into the optical sheets (See Claim Objections above).

Umemoto is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to arrange a transparent sheet between the diffusion plate and the light source and with a contour which is substantially equal to a contour of the diffusion plate and respective major portions or respective whole portions of four sides of the transparent sheet are adhered to the diffusion plate for the reasons as set for in Umemoto, specifically so that lowering of contrast can be prevented (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of Umemoto so that lowering of contrast can be prevented.

APA Figure 14 does not appear to explicitly specify that the liquid crystal display device includes a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source.

Yamaguchi teaches and discloses a back light for a liquid crystal module and an adjusting means (screws, 20) for changing the positions of a light curtain (10) and diffusion plate (9) from the outside of the back light housing (Abstracts of Japan). The screws (20)(Applicant's "spacer") adjust positions of the light curtain (10) and diffusion plate (9) to accommodate for thermal deformation (warp) and ultimately so that unequal brightness can be eliminated (Abstracts).

Yamaguchi is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source for the reasons as set forth in

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Yamaguchi, so that thermal deformation (warp) can be accommodated and so that unequal brightness can be eliminated.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of the teachings of Yamaguchi so that thermal deformation (warp) can be accommodated and to eliminate unequal brightness.

As to claim 8, Umemoto teaches and discloses that the optical films, diffusion layer and transparent adhesive are laminated, fixed, and bonded which suggests to one of ordinary skill in the art of liquid crystals that the whole or major portions of four sides of the transparent adhesive are adhered to the diffusion plate.

As to claim 9, the transparent adhesive is adhered to the diffusion layer by a tacky layer (Column 14, Lines 37-39).

As to claim 10, Umemoto teaches and discloses that optical films are laminated together and are integrated with one another (Column 13, Lines 59-65) and as such one of ordinary skill in the art of liquid crystals would infer that an optical sheet is adhered to the diffusion layer.

As to claims 11 (amended) and 14, APA Figure 14 illustrates the following elements: a liquid crystal display element (PNL, LC, SUB1, SUB2), a light source (BL) located right below a back surface of the liquid crystal element, a substantially rectangular diffusion plate (SCT) which is interposed between the liquid crystal display (PNL, LC, SUB1, SUB2) element and the light source (CFL), and at least one optical sheet (OPS) which is arranged between the diffusion plate (SCT) and the liquid crystal display element (PNL, LC, SUB1, SUB2), and the optical sheet (OPS) contacts the diffusion plate (SCT).

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APA does not appear to explicitly specify that the liquid crystal display device includes a transparent sheet which is arranged between the diffusion plate and the light source and has a contour which is substantially equal to a contour of the diffusion plate and at least respective portions of four sides of the transparent sheet are adhered to the diffusion plate.

Umemoto teaches and discloses a liquid crystal display device and a light diffusion layer (reference number 4 in the various figures). Umemoto states the following:

“According to the present invention, optical elements or parts such as the light pipe, the light diffusion layer, the liquid-crystal cells, the polarizing plates, etc., constituting the aforementioned liquid-crystal display device may be wholly or partially laminated and fixed so as to be integrated with one another or may be disposed in an easily separable state. From the point of view of prevention of lowering of contrast due to suppression of interfacial reflection, or the like, it is preferable that the optical elements or parts are fixed. A suitable transparent adhesive such as an adhesive can be used for the fixing and contacting process.” (Column 13, Lines 59-67 and Column 14, Lines 1-6)(emphasis added).

In other words, Umemoto provides a direct teaching that the diffusion layer can be adhered (laminated and fixed) with a transparent adhesive and furthermore that the diffusion type reflection sheet is bonded onto the lower surface of a light pipe by a tacky layer (Column 14, Lines 38-39). Therefore, it is strongly suggested that the whole surface of the transparent sheet must be adhered to the diffusion layer. It may be presumed that the diffusion layer and transparent adhesive have the same contour.

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Umemoto is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to arrange a transparent sheet between the diffusion plate and the light source and with a contour which is substantially equal to a contour of the diffusion plate and respective major portions or respective whole portions of four sides of the transparent sheet are adhered to the diffusion plate for the reasons as set for in Umemoto, specifically so that lowering of contrast can be prevented (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of Umemoto so that lowering of contrast can be prevented.

APA Figure 14 does not appear to explicitly specify that the liquid crystal display device includes a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source.

Yamaguchi teaches and discloses a back light for a liquid crystal module and an adjusting means (screws, 20) for changing the positions of a light curtain (10) and diffusion plate (9) from the outside of the back light housing (Abstracts of Japan). The screws (20)(Applicant's "spacer") adjust positions of the light curtain (10) and diffusion plate (9) to accommodate for thermal deformation (warp) and ultimately so that unequal brightness can be eliminated (Abstracts).

Yamaguchi is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include a spacer which restricts a warp quantity of the diffusion plate in the direction toward the light source for the reasons as set forth in Yamaguchi, so that thermal deformation (warp) can be accommodated and so that unequal brightness can be eliminated.

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Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA Figure 14 in view of the teachings of Yamaguchi so that thermal deformation (warp) can be accommodated and to eliminate unequal brightness.

As to claims 12 and 16, the transparent adhesive is adhered to the diffusion layer by a tacky layer (Column 14, Lines 37-39).

As to claims 13, 15, and 17, Umemoto teaches and discloses that optical films are laminated together and are integrated with one another (Column 13, Lines 59-65) and as such one of ordinary skill in the art of liquid crystals would infer that an optical sheet is adhered to the diffusion layer.

As to claims 19 and 20 (new), APA Figure 14 illustrates a plurality of fluorescent lamps (CFL).

Response to Arguments

Applicant's arguments with respect to claims 1, 7 and 11 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.


The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio
Patent Examiner
Art Unit 2871

JDG



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER